Tree Protection

Description

Protecting trees during construction activities is done to preserve their health and ensure their vitality after construction.

Other Terms Used to Describe

Tree Preservation

Pollutants Controlled and Impacts

Trees should be considered for preservation because:

- They stabilize the soil and prevent erosion
- They reduce stormwater runoff by intercepting rainfall and promoting infiltration
- They moderate temperature changes, promote shade, and reduce the force of wind
- They provide buffers and screens against noise and visual disturbance, and provide some privacy
- They filter pollutants from the air and produce oxygen
- They provide a habitat for animals and birds
- They increase property values and improve site aesthetics

Application

Land Use
This practice is used most often on construction sites.

Soil/Topography/Climate
This practice is especially important in areas subject to windthrow, where trees removed in the upland area may cause a domino effect in the lower area. It is also important on highly erodible soils, where tree roots help stabilize soils and prevent erosion.

When to Apply
Apply during site evaluation before any construction is done on the site. During site evaluation, note where valuable trees are located and incorporate them into the overall construction design.

Where to Apply
Apply anywhere trees are in need of protection.

Relationship With Other BMPs

Tree protection should be done before any Land Clearing or Grading Practices are done. Construction Barriers are often used in conjunction with tree protection.

Specifications

Note that much of the information below was derived from the North Carolina Erosion and Sediment Control Planning and Design Manual.

Planning Considerations:
When selecting trees to be protected, consider:

1. Tree vigor. Preserve healthy trees. Sick trees or those damaged beyond repair can be left for wildlife, or removed. Trees lacking vigor include those with dead branches, small annual twig growth, stunted leaf size, sparse foliage, and pale foliage color. Trees with hollow or rotten trunks also should be removed.

2. Tree age. Older trees are usually more aesthetically pleasing, but often require more maintenance than younger trees.

3. Tree species. Protect trees which are most suitable for the site development.

4. Tree aesthetics. Protect trees which are aesthetically pleasing.

5. Wildlife benefits. Protect trees which are preferred by wildlife for food, cover or nesting. Evergreens are important for cover during the winter months. Hardwoods are more valued for food. A mix of evergreens and hardwoods is usually most beneficial.

Design Considerations:
When designing a construction site in wooded areas, consider:

1. Leaving critical areas (such as floodplains, steep slopes and wetlands) with as many desirable trees as possible in their natural condition.

2. Locating roadways, storage areas and parking areas away from valuable trees.

3. Selecting trees to be preserved before siting roads, buildings, or other structures.

4. Minimizing trenching in areas with trees. Multiple utilities should be placed in the same trench.

5. Equipment, structural materials, topsoil and fill dirt should never be stored in the drip line of the tree.

6. When the construction plan calls for lowering or raising the grade around trees, see the specifications for tree wells and tree walls in the Grading Practices BMP.

Implementation:
See Exhibit 1 for examples of several types of tree protection methods.

1. Never excavate, traverse, or fill closer than the drip line of trees to be saved.

2. Trees which will be preserved should be marked with a bright color paint or surveyor's ribbon applied in a band circling the tree at a height visible to equipment operators.

3. (Construction) Barriers for tree protection should never be placed within the drip line of the tree.

4. Don't cut roots in the drip line.

5. Never nail boards or wire to the trees, as this will make them more susceptible to disease, insect damage and decay. As a last resort, a tree trunk can be armored with burlap wrapping and 2-inch studs wired vertically no more than two inches apart to a height of five feet encircling the trunk.
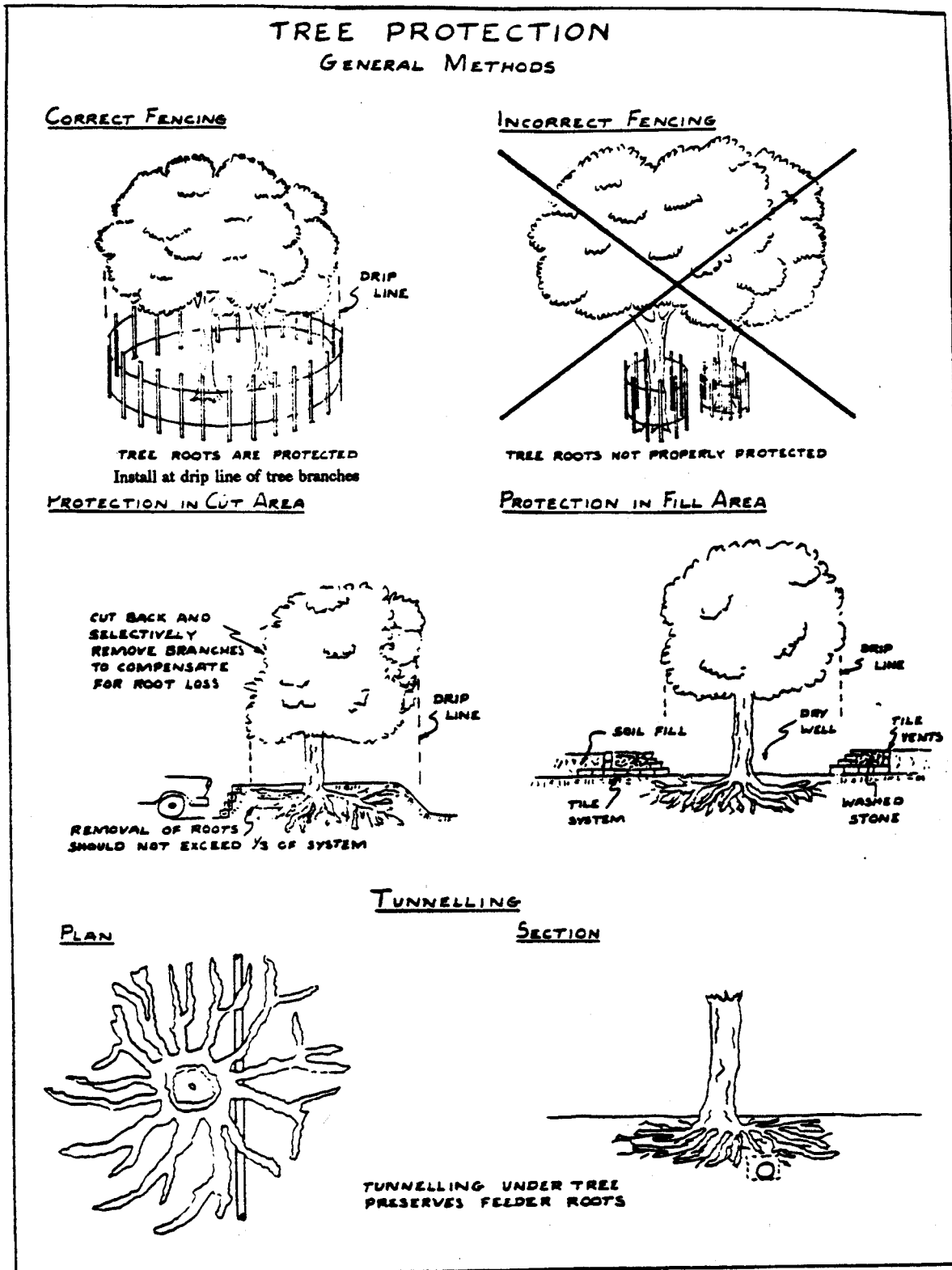
After Construction:
Once construction is complete, you can remove all temporary tree protection devices. Inspect all trees to ensure they are in good health. Repair all damaged roots and branches:

1. Repair roots by cutting off the damaged areas and painting them with tree paint. Spread peat moss or moist topsoil over exposed roots.

2. Repair damaged bark by trimming around the damaged area (as shown in Exhibit 2). Taper the cut to provide drainage. Paint with tree paint.

3. Cut off all damaged tree limbs above the tree collar at the trunk or main branch. Use three separate cuts to prevent bark from peeling off healthy areas of the tree. (See Exhibit 2).

4. Trees which are severely damaged should be removed and replaced with similar species, with trunk diameters at least 2 inches.

5. Soil over the root zone which has become compacted should be aerated by punching holes in it with suitable equipment.

<center>**Exhibits**</center>

Exhibit 1:   Tree Protection, General Methods, Detail TP-1.   Construction Project Evaluation Manual. MDNR, Land and Water Management Division.

Exhibit 2:   Repairing Damaged Tree Limbs. North Carolina Erosion and Sediment Control Planning and Design Manual.

Exhibit 1

TREE PROTECTION
GENERAL METHODS

CORRECT FENCING

DRIP LINE

TREE ROOTS ARE PROTECTED
Install at drip line of tree branches

INCORRECT FENCING

TREE ROOTS NOT PROPERLY PROTECTED

PROTECTION IN CUT AREA

CUT BACK AND SELECTIVELY REMOVE BRANCHES TO COMPENSATE FOR ROOT LOSS

DRIP LINE

REMOVAL OF ROOTS SHOULD NOT EXCEED 1/3 OF SYSTEM

PROTECTION IN FILL AREA

DRIP LINE

SOIL FILL

DRY WELL

TILE VENTS

TILE SYSTEM

WASHED STONE

TUNNELLING

PLAN

SECTION

TUNNELLING UNDER TREE PRESERVES FEEDER ROOTS

Source: Construction Project Evaluation Manual. Michigan Department of Natural Resources, Land and Water Management Division.

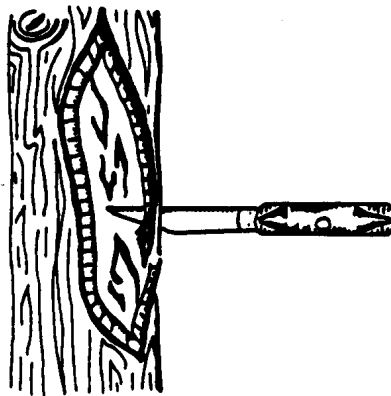**Exhibit 2**

Repairing Damaged Tree Limbs
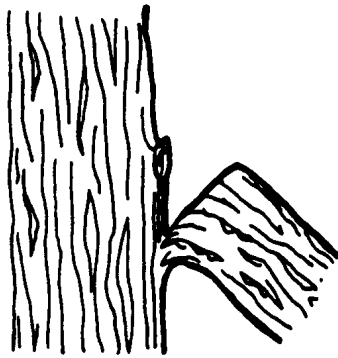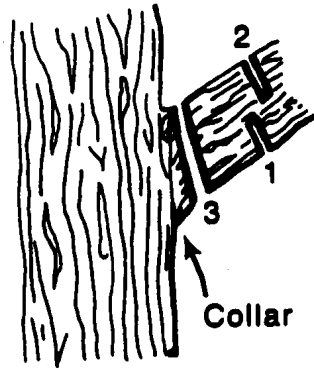
Trim bark wounds with a
tapered cut, then apply
tree paint.

Incorrect   Correct

Collar

Tree wound   Trim and taper

Prune damaged branches
with three cuts to avoid
peeling bark from the
tree trunk when limb falls.

Source: North Carolina Erosion and Sediment Control Planning and Design Manual